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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,674	02/14/2002	Kenneth K. Sokoll	1151-4172	1691
27123	7590	10/19/2005	EXAMINER	
MORGAN & FINNEGAN, L.L.P.			LE, EMILY M	
3 WORLD FINANCIAL CENTER			ART UNIT	
NEW YORK, NY 10281-2101			PAPER NUMBER	

1648

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/076,674

Applicant(s)

SOKOLL, KENNETH K.

Examiner

Emily Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 5/27/05 + 6/29/05.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4-10 and 12-75 is/are pending in the application.
- 4a) Of the above claim(s) 14-17 and 20-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-10, 12-13 and 18-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION

Reassignment

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 1648, Examiner Emily Le.

Status of Claims

2. Claims 2-3 and 11 are cancelled. Claims 1, 4-10 and 12-75 are pending.

In Applicant's 05/27/2005 response, Applicant traversed the Office's withdrawal of claims 15-17 and 22-23. Applicant submits that claim 14, which depends on claim 12, and claim 20, which depend on claim 19, should be examined together with its parent claim. Applicant submits that because of their dependency, no additional search is required. Thus, Applicant requests a rejoinder of the withdrawn claims, specifically claims 14 and 20 to the present invention.

Applicant's submission has been considered, however, it is not found persuasive. Applicant is reminded that the restriction requirement is final. Applicant is further reminded that the basis of a restriction requirement is patentably distinct or unrelated inventions. A restriction requirement is not made on the basis of claim dependency. Ergo, Applicant's request for examination of claims 14 and 20 is not granted.

Furthermore, in the instant, Applicant has elected SEQ ID NO: 1 and 9 for examination. Applicant did not elect SEQ ID NO: 2, as set forth in claim 14. Nor did Applicant elect the mixture of SEQ ID NOs: 7-9, as set forth in claim 20. Ergo, Applicant's request for examination of claims 14 and 20 is not granted.

Thus, claims 14-17, 20-75 are withdrawn from examination. Claims 1, 4-10, 12-13 and 18-19 are under examination.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "particulate" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 18 recites the limitation "wherein LHRH is conjugated to a T helper cell epitope" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 1, 5, 7-10, 12-13 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al.¹ in view of Ladd et al.,² as evidenced by result no. 1 of the rag search summary page.

The claims are directed at composition that is a microparticulate comprising a cationic peptide immunogen, and an anionic CpG oligonucleotide.

The claims require that the anionic CpG oligonucleotide have a net negative charge at a pH in the range of 5.0 to 8.0; be single-stranded DNA comprising 8 to 64 nucleotide bases, which is later limited to 18-48 nucleotide bases, with a repeat of a cytosine-guanidine motif; and the number of repeats of the CpG motif is in the range of 1 to 10—which is later limited to the range of 3-8. The claims require the net negative charge of the anionic CpG oligonucleotide be at least -2, the anionic CpG oligonucleotide be 18-48 nucleotide bases; and the anionic CpG oligonucleotide have the formula: 5'X¹CGX² 3', wherein X¹ is selected from the group consisting of A (adenine), G (guanine) and T (thymine), and X² is selected from the group consisting of C (cytosine) and T (thymine). In addition, the claims also require the anionic CpG oligonucleotide have the following formula: 5'(X³)₂CG(X⁴)₂ 3', wherein X³ is selected from the group consisting of A or G, and X⁴ is selected from the group consisting of C or T.

The claims require the cationic peptide immunogen to comprise a target B cell antigen or a CTL epitope and a T helper cell epitope, have a net positive charge at a pH in the range of 5.0 to 8.0 calculated by assigning a +1 charge for each lysine,

¹ Krieg et al. WO01/22972.

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arginine and histidine; a -1 charge for each aspartic acid and glutamic acid; and a charge of 0 for all other amino acids in the cationic peptide immunogen.

The claims later limited the anionic CpG oligonucleotide to SEQ ID NO: 1, and the cationic peptide immunogen to SEQ ID NO: 9.

SEQ ID NO: 1 is a single-stranded DNA comprising 32 bases with a repeat of a cytosine-guanidine motif. The number of cytosine-guanidine repeats is 5. This number of repeats is with the range that is instantly claimed, 1-10—which is later narrowed to 3-8. The number of nucleotide bases present in SEQ ID NO: 1 is within the 8-64 and 18-48 ranges that is set forth in the claims. SEQ ID NO: 1 is also have the 5'X¹CGX² 3', wherein X¹ is selected from the group consisting of A (adenine), G (guanine) and T (thymine), and X² is selected from the group consisting of C (cytosine) and T (thymine). In addition, the claims also require the anionic CpG oligonucleotide have the following formula: 5'(X³)₂CG(X⁴)₂ 3', wherein X³ is selected from the group consisting of A or G, and X⁴ is selected from the group consisting of C or T. And have a net negative charge of at least -2, specifically -32.

SEQ ID NO: 9 is a cationic peptide comprising a target B cell antigen or a CTL epitope and a T helper cell epitope, have a net positive charge of +4, and is a LHRH protein conjugated to B-cell and T-help epitopes.

Krieg et al. does not teach the claimed composition. Hence, this is not an anticipatory rejection. However, Krieg et al. does suggest the claimed composition.

² Ladd et al. WO 94/25060.

Krieg et al. teaches a composition that is a microparticulate comprising an immunostimulatory oligonucleotide and antigen. [Claims 101-103]

The immunostimulatory oligonucleotide that Krieg et al. teaches is a CpG oligonucleotide, particularly SEQ ID NO: 429. SEQ ID NO: 429 of Krieg et al. is the same as the SEQ ID NO: 1 recited in the claims. Thus, SEQ ID NO: 429 of Krieg et al. is a single-stranded DNA comprising 32 bases with a repeat of a cytosine-guanidine motif. The number of cytosine-guanidine repeats is 5. This number of repeats is with the range that is instantly claimed, 1-10—which is later narrowed to 3-8. The number of nucleotide bases present in SEQ ID NO: 1 is within the 8-64 and 18-48 ranges that is set forth in the claims. SEQ ID NO: 1 is also have the 5'X¹CGX² 3', wherein X¹ is selected from the group consisting of A (adenine), G (guanine) and T (thymine), and X² is selected from the group consisting of C (cytosine) and T (thymine). In addition, the claims also require the anionic CpG oligonucleotide have the following formula: 5'(X³)₂CG(X⁴)₂ 3', wherein X³ is selected from the group consisting of A or G, and X⁴ is selected from the group consisting of C or T. And have a net negative charge of at least -2, specifically -32.

The antigen that Krieg et al. teaches is any molecule capable of provoking an immune response. In the instant, Krieg et al. does not teach the cationic peptide immunogen that comprises a target B cell antigen or a CTL epitope and a T helper cell epitope as an antigen.

However, Ladd et al. teaches a cationic peptide immunogen. The cationic peptide immunogen of Ladd et al. is a molecule capable of provoking an immune response.

The cationic peptide immunogen of Ladd et al. is LHRH protein conjugated to B-cell and T-help epitopes, which have the amino acid sequence set forth in SEQ ID NO: 35. SEQ ID NO: 35 has the same amino acid sequence set forth in the SEQ ID NO: 9 recited in the claims, as evidenced by result no. 1 of the rag search summary page. Result no. 1 of the rag search summary page shows that Ladd et al. teaches an amino acid sequence that is the same as that of SEQ ID NO: 9 recited in the claims. Ergo, SEQ ID NO: 35 of Ladd et al. would also have a net positive charge of +4.

Ladd et al. teaches that the cationic peptide immunogen is useful for regulating infertility and for treating prostatic hyperplasia, androgen-dependent carcinoma, prostatic carcinoma and testicular carcinoma in males. Ladd et al. also teaches that the cationic peptide immunogen is useful for treating endometriosis, benign uterine tumors, recurrent functional ovarian cysts and premenstrual syndrome, and preventing or treatment of estrogen-dependent breast cancer in females. [Abstract]

In the instant, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to combine the teaching of Krieg et al. and Ladd et al. Krieg et al. teaches a pharmaceutical composition comprising an anionic CpG oligonucleotide and an antigen; and Ladd et al. teaches an antigen.

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One of ordinary skill in the art at the time the invention was made would have been motivated to do so to make a composition that regulates infertility; treats prostatic hyperplasia, androgen-dependent carcinoma, prostatic carcinoma and testicular carcinoma in males; and treats endometriosis, benign uterine tumors, recurrent functional ovarian cysts, premenstrual syndrome, and prevents or treats estrogen-dependent breast cancer in females. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for doing so because Krieg et al. teaches a pharmaceutical composition comprising an anionic CpG oligonucleotide and an antigen; and Ladd et al. teaches an antigen.

Thus, absent evidence to the contrary, one of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for producing the claimed invention.

7. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krieg et al. in view of Ladd et al., as applied to claim 1 above.

The claims require that the cationic peptide immunogen be a mixture of synthetic peptide immunogens, and have an average net positive charge of at least +2.

The significance of Krieg et al. and Ladd et al. as it pertains to claim 1 is provided above.

In addition to teaching a cationic peptide having the same amino acid as that of SEQ ID NO: 9 recited in the claims, Ladd et al. also teaches the use of a mixture of synthetic peptide immunogens, e.g. SEQ ID NO: 35 with SEQ ID NO: 10. [Claim 20

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of Ladd et al.] Additionally, Ladd et al. suggests the use of one or more peptide immunogens to reduce or suppress LHRH levels in a mammal. [Lines 26-35 of page 30]

Ergo, it would have been prima facie obvious for one of ordinary skill in the art at the time the invention was made to use a mixture of peptide immunogens. One of ordinary skill in the art at the time the invention was made would have been motivated to do so develop a more efficient immune response to the antigen. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for doing so because these peptides are capable of reducing or suppressing LHRH levels in a mammal.

Additionally, a mixture of synthetic peptide immunogens having the amino acid sequence of SEQ ID NOs: 10 and 35 would yield a net positive charge of at least +2. SEQ ID NO: 35 has a net positive charge of +4. SEQ ID NO: 10 has a net positive charge of also +4. The average of the two charges is at least +2.

Thus, absent evidence to the contrary, one of ordinary skill in the art at the time the invention was made would have had a reasonable expectation of success for producing the claimed invention.

Double Patenting

8. In response to the provisional double patenting rejection set forth in the previous office action, Applicant submits that the rejection will be properly addressed upon allowance of the claims.

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Applicant's submission has been considered. Because the submission does not fully address the rejection, the rejection is maintained even in view of Applicant's amendment. In the instant, claim 1 of the instant patent application is the same as that of claim 3 of the conflicting patent application. Ergo, the rejection is maintained.

Conclusion

9. No claim is allowed.
10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Le whose telephone number is (571) 272 0903. The examiner can normally be reached on Monday - Friday, 8 am - 5:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel can be reached on (571) 272-0902. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrey S. Parkin, Ph.D.
Primary Patent Examiner
Art Unit 1648



Emily Le
E. Le